CellPath™ 300
ATM WAN Multiplexer
Release Notes

Software Version 1.3

MANU0096-03
02/02/98

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1.0 The *CellPath* 300

These Release Notes highlight the features of the new *CellPath* 300 ATM WAN Multiplexer Release 1.3. The *CellPath* 300 is an 8-slot modular system supporting adaptation and concentration of non-ATM and ATM applications. It adapts and multiplexes non-ATM traffic, such as packet data, PBX trunks and videoconferencing links, using standards-based adaptation schemes for connection to ATM networks and services. The *CellPath* 300 provides customers with a solution for extending the reach of ATM networks to equipment and locations that do not support ATM connections today.

2.0 New Features in Release 1.3

Several new features and capabilities have been added to the *CellPath 300* Release 1.3. These new features are described below.

2.1 Inverse Multiplexing for ATM

CellPath 300 ATM Inverse Multiplexing allows you to build ATM links between locations which aggregate the bandwidth across as many as four T1/E1 facilities. With *CellPath* 300 Inverse Multiplexing, you can build network connections supporting applications operating at speeds greater than the capacity of any single T1/E1 facility. The *CellPath* 300 Inverse Multiplexing Module will support applications ranging in speeds from 56/64 kbps to 6/8 Mbps. The module dynamically adapts to network conditions, minimizing the impact of facility outages and restores while applying proven traffic management techniques to control link congestion.

2.2 HSSI, Packet DS3, Packet E3

The single-port *CellPath* 300 High Speed Packet Protocol Module supports frame-to-ATM interworking for data applications. This module also forwards frame traffic from DS3/E3 ports connecting to network (i.e., WAN) frame services as well as HSSI ports connecting to collocated data equipment. This Protocol Module, when paired with HSSI PLM can operate at data speeds from 512 Kbps to 51.2 Mbps. It supports frame-to-ATM forwarding for all HDLC-based protocols including Frame Relay, ATM DXI, SDLC, X.25, PPP, etc. In particular, the *CellPath* 300 fully supports Frame Relay Network and Service Interworking as defined in the Frame Relay Forum's FRF.5 and FRF.8 Implementation Agreements. Now the *CellPath* 300 can be used to connect to high-speed data devices as well as high-speed data services operating at multi-megabit speeds.

2.3 Reset Module Option on Utilities Menu

In rare circumstances, a module in the *CellPath* 300 may encounter a problem in which the solution is to simply "reset" the module. In past releases, the only way to reset an individual module in the *CellPath* 300 was to unseat it (pull it partially out of the chassis), and then re-seat it. Now there is an option on the `Utilities` menu that enables you to reset the module. This option, `Reset Slot`, allows you to soft reset the PM/PLM pair to either the present configuration or factory defaults.

Setting the slot to factory defaults will delete all connections relating to the PM/PLM pair being reset.

2.4 HTTP Configuration Option on the Utilities Menu

A new feature has been added to the *CellPath* 300 to allow you to redirect HTTP queries to a server. This option lets the *CellPath* 300 emulate web server functionality and will be documented in greater detail by the web-based managers that use this feature.

2.5 Firmware Update

IMA firmware must be version 1.2 or later in order to be compatible with *CellPath* 300 system software 1.3. You can download the latest software from `www.fore.com`.

Use the following procedure to update the firmware and software:

1. Stop all traffic on the IMA links by shutting off the traffic flow at the device using the IMA links.
2. Upgrade the IMA firmware on the *CellPath* 300 devices on both ends of the IMA links.
3. Upgrade the system software on the *CellPath* 300 devices on both ends of the IMA links.
4. Restart the traffic flow through the IMA links.
5. If traffic is not flowing, re-enable the group on the *CellPath* 300 device on either end of the IMA links.

NOTE

Any inconsistencies in this area are reported in the *CellPath* 300 Module Information form. If the form shows the message `Incompatible FLASH` it means that the version of firmware loaded on that IMA module is incompatible with the system software and needs to be updated. If the form shows the message `Invalid FLASH`, it means that the firmware is corrupted and needs to be reloaded.

2.6 New Latch on DC Power Supplies

The *CellPath* 300's DC power supply now includes a latch that prevents the DC power from being shut off when the On / Off switch is accidently bumped.

To use the latch, loosen the screw with a flat-blade screw driver, swing the latch up over the power supply switch (the switch must be in the On position), and tighten the screw.

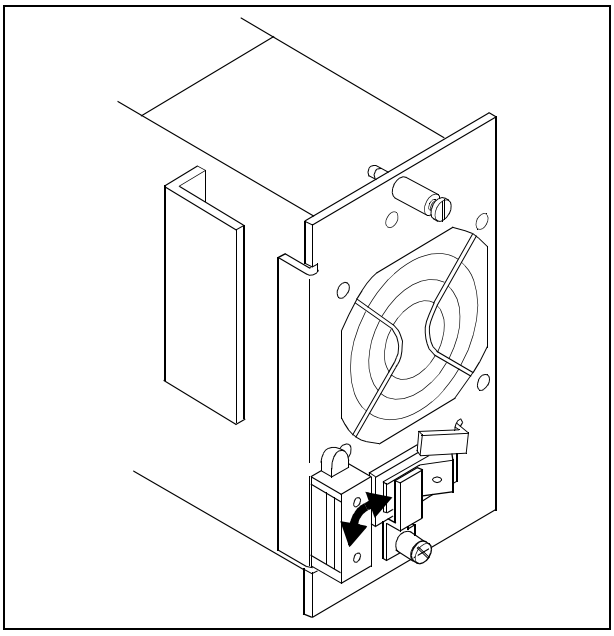

Figure 1 - Latch Prevents DC Power Supply from Being Accidently Shut Off

3.0 List of Basic Features

The *CellPath* 300 ATM WAN Multiplexer offers the following features:

- Modular Design - Integrates ATM and non-ATM applications over ATM networks.
- Application Support - Supports up to 24 different applications with a total of 524 Mbps throughput.
- Networking Services Support - Supports three types of port interfaces: Circuit, Packet Data, and ATM ports.
- Physical Layer Support - Offers T1 (DSX-1)/E1, V.35/EIA-530, E3, DS3, OC-3c/STM1 Physical Layer Modules (PLMs).
- Protocol Support - Supports ATM UNI, Frame Relay, ATM DXI, and HDLC-based data link protocols.
- Connectivity - Provides any-to-any port connectivity.
- Traffic Management - Offers traffic shaping, traffic policing, and congestion management.
- In-band Management - Provides in-band Telnet and SNMP management via ATM connections.

4.0 Hardware and Software Requirements

When using the *CellPath* 300 in an ATM network for circuit applications (i.e., CBR connections), the network must operate as a synchronized digital network. If the backbone network is built using FORE's ATM switches, the following requirements must be satisfied in order for the network to support the required synchronous operation.

4.1 Switching Platforms

- ASX-200BX, ASX-200BXE, ASX-1000

4.2 Switch Software Release

- 3.4.3 or later

4.3 Network Modules

- Series C only, with the following provisions:
  - All revisions of DS1, E1, DS3, E3, and mixed mode OC-3c network modules
  - Revision M or later of OC3-c SM network modules
  - Revision F or later of OC-3c MM network modules

With the *ForeThought* 4.0 software release, the ASX-1000 does not pass timing between its four switching fabrics. Each 2.5 Gbps fabric and associated network modules must be configured for synchronous operation independent of the other fabrics. The *CellPath* 300 must be connected to a switch fabric that has been properly configured for network synchronization.

5.0 Known Issues and/or Concerns

5.1 Clearing IMA-related Statistics Counters

The physical layer statistics (DSX-1 and E1 statistics) and IMA link statistics are integral and cannot be cleared independently. The effect of this is that the [Zero Stats] button on the DSX-1 Stats form clears the counter for both DSX-1 statistics and IMA link statistics for the port in question. Similarly, the [Zero Stats] button on the E1 Statistics form clears the counter for both E1 statistics and IMA link statistics. In either case, the ATM cell statistics and IMA group statistics are not affected.

The [Zero Stats] button in the ATM Cell Statistics form clears the counter for only the cell statistics, but does not affect the link-level or physical statistics.

The [Zero Stats] button in the IMA Group Statistics form clears all counters associated with the group: the group statistics counter, the cell statistics counter, the port statics counter, and the link statistics counter. This is because the link-level statistics are integral to the group level statistics and both must be cleared to get consistent counts.

5.2 Do Not Add an Unconfigured Link to an IMA Group

If a link is not functioning and you add it to an IMA group, the *CellPath* 300 does not alert you that the add operation failed. For example, if you disconnect a functioning link from a port and then add the link to the group, the *CellPath* 300 does not display a message saying that the add operation failed. As you would expect for a link that is physically disconnected, the Links in Use field of the Group Configuration form does not show the link as active. But if you then physically reconnect the link, it still does not become active. To make the link part of the group and active, you must re-issue the **add** command.

5.3 Do Not Lock Yourself Out

It is possible to accidentally terminate your *CellPath* 300 login session by using the address screening features improperly. This occurs with login sessions through either a PCMCIA Ethernet Card, or through an inband connection. The problem typically occurs when you enable an address screening list that does not include the address of the device which you are using to log into the *CellPath* 300.

The screening function uses a list of addresses — if the list is enabled, then only devices on the list are allowed access. However, there are two separate screening lists on the *CellPath* 300: one that screens based on Ethernet address, and one that screens based on IP address. The Ethernet screening applies only to access through the Ethernet PCMCIA card. The IP screening applies to access through both the Ethernet PCMCIA card and any inband connection. Thus, if a device is allowed access by the Ethernet list, but not allowed access by the IP list (and both lists are enabled), it is denied access to the *CellPath* 300.

Accidental termination typically occurs in two different situations. The first situation occurs if you are using a single screening list, accidently delete the address of the managing device from the list, and enable the list. The session terminates without warning.

The second situation occurs if you attempt to employ both screening lists. First you include the Device A (which is using the PCMCIA port for access) on the Ethernet list and enable the list. Then at a later date you want to allow access to Device B through an inband connection. You are logged in to the *CellPath* 300 using Device A, put Device B on the IP list, but neglect to also include Device A. You then enable the list, and the session is terminated without warning.

In either case, you will have to log in to the *CellPath* 300 through some other route and correct the problem. Typically, this will mean logging in through a terminal locally connected to the comm port on the *CellPath* 300.

To avoid these problems, follow these rules of thumb. If using just one of the screening lists, never enable the list unless you are sure that the management device you are using is on the list and do not delete an address from the list if it is the address of the management device you are using for the session. If using both the Ethernet screening list and the IP screening list, never enable the IP list unless it includes the IP addresses of all management devices on the Ethernet list.

5.4 AAL 5 Connection Misconfigured for AAL 3/4 is Flagged by Misleading Statistics

If you mistakenly specify AAL 3/4 when you configure a connection and the connection is actually carrying AAL 5 traffic, the *CellPath* 300 misleadingly reports a high number of cells discarded due to traffic exceeding the peak cell rate (PCR). You are not alerted in any other way that the connection is misconfigured.

When the *CellPath* 300 expects an AAL 3/4 packet but receives an AAL 5 packet, it fails to find end-of-packet status bits because it is looking for AAL 3/4 EOM instead of AAL 5 EOM. Eventually, the *CellPath* 300 declares that the packet has exceeded the maximum burst size and begins discarding cells. It continues discarding cells until it sees the beginning of a new AAL 3/4 packet, which will never happen since the connection carries only AAL 5 packets. So, it discards cells indefinitely.

If you see this behavior, reconfigure the connection with the correct AAL.

5.5 Interrupted System Software or IMA Firmware Download can Cause Temporary Hang

If you are downloading system software or IMA firmware and you lose IP connectivity with the *CellPath* 300, the *CellPath* 300 user interface may temporarily hang once you regain connectivity. This could be manifested as, for instance, a frozen user interface or an inability to restart the IMA download. If you experience this, wait four or five minutes and try again.

5.6 Use a 1 Mbyte PCMCIA Card to Save a Configuration

Saving a *CellPath* 300 configuration to a PCMCIA RAM card requires at least a 1 Mbyte card. Saving to a 512 Kbyte card truncates the configuration and renders it useless. Further, the *CellPath* 300 does not warn you that the `Save` failed, but instead displays a message stating that the `Save` was successful.

5.7 10201 Packet PM

The 10201 Packet PM takes longer to load ATM connections than other modules. During a cold start of the *CellPath* 300, it may be necessary to reset the Packet PM if there are greater than 1000 connections assigned to this module.

The `Input Flow Control` option is disabled on theV.35 PLM when mated to the Packet PM.

5.8 Closed Loop Flow Control

The Closed Loop Flow Control feature of the 10201 Packet protocol module has been disabled.

5.9 Using Default DLCIs

FRF Section 4.3 specifies that a default DLCI of 1022 can be used when transporting Frame Relay across an ATM network. To enable this feature, the option `FR DEF` must be selected for the SSCS in the connection form.

5.10 Using IMA PLMs

The Cell Delay Variation (CDV) for data cells through the IMA PLMs is less than 600µs when using the 10313 IMA PLM, and less then 700µs for the 10312 IMA PLM.

When you administratively disable an IMA group and then re-enable an IMA Group, there is a small possibility the IMA group will come up in an Errored state which causes cells in the connections to be misordered. After re-enabling the IMA Group, clear this condition by individually deleting and re-adding each IMA link in the group. Network service affecting conditions such as power failures, errored IMA links or IMA link outages do not cause this problem to occur.

5.11 V.35 Clock Rate Changed by Software Upgrade

If your *CellPath* 300 is running Software Revision 1.10 and you have V.35 ports configured for 128 Kbps clock rates, when you upgrade to *CellPath* 300 Software Release 1.3, the V.35 clock rates are reset to 64 Kbps. This is due to a problem with Release 1.10 and the way it stores clock rates in the configuration flash. After the upgrade, you should verify that your V.35 port clock rates are correct.

5.12 Using AMI Line Coding with ATM UNI DSX-1

If you select AMI line coding on a DSX-1 port that is running ATM UNI, you must also enable `Cell Payload Scrambling`. Without `Cell Payload Scrambling` enabled, data containing long strings of zeros may result in Loss of Framing and Loss of Signal alarms, as well as corruption of the data being transmitted. While in AMI line coding, the DSX-1 framer depends on a minimum 1's density to maintain its recovered clock.

5.13 Transmit Clock Source

Setting MIB variable `dsx1TransmitClockSource` or `dsx3TransmitClockSource` to `throughTiming(3)` has the same effect as setting the variable to the value `localTiming(2)`.

5.14 Sending DSX-1/E1 Codes

The *CellPath* 300 allows values other than `dsx1SendNoCode(1)` to be set for the `dsx1SendCode` MIB variable, although these values cause no codes to be transmitted.

5.15 Minimum PCR and SCR on OC-3 Cell Ports

Connections that terminate on an OC-3 cell port are not policed at less than 692 cells per second, which is the minimum rate supported by the hardware. The *CellPath* 300 software allows you to enter rates below 692 cells per second, but when you apply the connection, the *CellPath* 300 automatically moves the PCR and SCR up to 692 cells per second.

5.16 Maximum Rate Table Indices for Cell Ports

The description for the `portMaxRateIndex` variable in the *CellPath* 300 MIB and the *CellPath* 300 MIB Reference manual specify separate maximum values for Cell-PLCP and Cell-HEC operation. However, the *CellPath* 300 does not actually limit Cell-PLCP operation to the specified Cell-PLCP maximum values, but allows Cell-PLCP operation to use rates up to the higher Cell-HEC maximum values. Accordingly, the user interface allows cell ports configured for PLCP cell delineation to use the higher bandwidths normally used with HEC cell delineation.

5.17 Setting E1 Framing while using Fractional E1

When you have an E1 port configured to use channelized 64K and you attempt to change the framing mode to a mode that requires the use of a channel you have blocked in your channel mask, then you must first set channelized to `Disabled` and select `Apply`. Then change the E1 framing format to the desired setting and select `Apply` again. Changing the framing mode without disabling channelization may result in the framing mode reverting to its previous settings.

5.18 Using VT220, VT320, and VT420 Terminals

When using VT220, VT320, or VT420 terminals, set up the terminal to emulate a VT100, and use the `<PF2>` key to invoke the `F2` functionality (i.e., pop-up a choice list for those fields which have choice lists installed).

5.19 Setting PCR to Avoid Frame/Cell Discard with Small Frame Relay or ATM DXI Frames

The *CellPath* 300 *ATM WAN Multiplexer User's Manual* recommends setting the PCR for VBR connections involving a packet port to 173 cps for each 64K of clock rate on the packet port. While this formula works fine for large frames (>400 bytes in size), it may result in an inadequate PCR to fully pass all cells when packet sizes are smaller (64 to 400 bytes in size). It may be necessary to increase the PCR by as much as 50% for frames of 64 bytes in size. This increase in PCR is caused by the segmentation process that converts frames into cells. A frame of 64 bytes requires two ATM cells for transport. With AAL5 segmentation, the first cell is completely filled while the second cell is 42% full, leaving 58% of the second cell unused. For example, assume a packet port clock rate of 2.048 Mbps and a contiguous stream of 64 byte frames with only a single flag between them is flowing into the port. The User's Manual PCR value is calculated as:

PCR = 2048 / 64 * 173 = 5536 cells per second

The actual cell rate required to avoid cell discard is:

PCR = 2048 / 64 * 173 * 2 / 1.42 = 7798 cells per second

In the second equation above, the number 2 represents the overall number of ATM cells required to hold the 64 byte frame and 1.42 is the portion of the two ATM cell payloads that are actually used by the 64 byte frame (2*48/(64+4)). You can use the same methods and equations to calculate the maximum PCR for any packet size by determining the number of cells used and percentage of the available cell payload used.

5.20 Avoiding Loss of Large Frames on Low Clock Rate Packet Ports

The *CellPath* 300 allows you to specify reassembly time limits of 250µs, 500µs and 1 second for its low speed (2.048 Mbps and less) packet ports. At rates of 64K, large frames can take an excessively long time to transport. For example, at 64K, the maximum size frame (9232 octets) takes 1.15 seconds to pass. This is longer than the 1 second maximum reassembly time out. This means the frame will be discarded before it has completed reassembly. The maximum frame size that can be safely transmitted at 64 Kbps is about 8000 octets. To avoid lost frames at low packet port clock rates, set the reassembly time out on the *CellPath* 300 to be 1 second and set the maximum MTU size of your terminal equipment to insure passage of the frame in an amount of time less than the reassembly time out value. See the *CellPath* 300 *ATM WAN Multiplexer User's Manual* for information on setting the *CellPath* 300's reassembly time out values.

5.21 Using E3 G.751 Framing with ATM UNI Protocol

The *CellPath* 300 allows you to specify G.751 framing with ATM UNI protocol using HEC cell delineation. G.751 framing is incompatible with ATM UNI on E3. For ATM UNI on E3, you must use G.832 framing.

5.22 LinkUp, LinkDown Traps are Disabled

By default, the LinkUp and LinkDown traps for non-IP interfaces are disabled on the *CellPath* 300. Because RFC 1573 recommends that these traps be enabled by default, this has led to confusion for users who are writing applications that access the *CellPath* 300 using SNMP and the MIB database.

For users of the ASCII-based user interface or the web-based graphical user interface, the disabled traps are not an issue. The *CellPath* 300 enterprise MIB implements traps that perform the same function more effectively than the standard LinkUp and LinkDown traps and these traps are used by user interfaces. If the LinkUp and LinkDown traps were enabled, it would result in a redundant (and possibly confusing) reporting of events in the *CellPath* 300 event log.

If you are writing an application that uses SNMP to access the *CellPath* 300 and you want to enable the standard LinkUp and LinkDown traps, use the `ifLinkUpDownTrapEnable` object. This variable is indexed by the interface number (not the slot/port number). To find the interface number, walk the IfTable.You will see entries in this format:

ifDescr.19
STRING:vbrPkt:32

This shows that the vbr/packet port that is physically located in slot 3, port 2 of the *CellPath* 300, has the interface number `19`. In this case you would set `ifLinkUpDownTrapEnable.19` to `Enable`.

5.23 Statistics May Be Off Prior to 24 Hours of Continuous Operation

For the 24 hours after statistics are zeroed or after a new module is configured, the oldest interval for that module may not contain 15 minutes of data. This is because all statistic intervals are synchronized to the *CellPath* 300 system time, and a new interval begins every 15 minutes. For example, if the statistics for a module are zeroed at 8:14, the oldest interval only contains one minute of data, because a new interval starts at 8:15. This would be reflected in utilization statistics.

In the example above, even if the actual utilization rate for the line was 90%, the utilization statistics for the oldest interval would only show 6%, because there was only one minute of data in the interval (1/15th of a normal interval). Statistics can be inaccurate not only for the oldest interval but for the total statistics, too, since the oldest interval contributes to the total. The utilization statistics get more accurate as the number of intervals approaches 96 (since the oldest interval becomes a smaller and smaller percentage of the total). After 24 hours, the oldest interval is discarded to make room for the newest interval, so the problem described here is not an issue after a module has been up and running for 24 hours.

5.24 Erroneous Packet Statistics

If a Quad V.35 PLM is paired with a Quad Packet PM, an erroneous `Invalid HDLC Pkts` counter keeps incrementing in the `[Packet Statistics]` even in a perfectly functioning network. Also, similar erroneous counter increments are seen on `[Packet Statistics]` if the in-flow control option is enabled on the HSSI PLM.

5.25 TS16 Enabled

If an E1 port is configured for NX64, and TS16 is enabled, traffic will not pass data through the port. The workaround is to toggle (disable then enable) the state of TS16 to have the circuit working.

6.0 *CellPath* 300 Software/Hardware Compatibility

Table 1 outlines the *CellPath* 300's software and hardware compatibilities:

Table 1 - *CellPath* 300 Software / Hardware Compatibility

P/N	Description	Base Hardware/Software Compatibility Restrictions
10200	Cell PM	Rev. 005 or higher when mated to a 10310 J2 PLM Rev. 006 or higher for selectable burst size Software version 1.20 or higher
10201	Packet PM	Software version 1.26 or higher
10202	Quad Cell PM	Software version 1.02 or higher
10203	Quad Packet / CBR PM	Rev. 002 or higher for OAM functionality
10205	Quad Packet PM	Software version 1.17 or higher
10301	HSSI PLM	Software version 1.26 or higher
10302	Quad DSX PLM	Rev. 003 for NX56 rates, with Software version 1.15 or higher
10303	TriV.35 & DSX PLM	Rev. 003 for NX56 rates, with Software version 1.15 or higher. Rev. 003 or higher is preferred when interfacing to a 10201 Packet PM.
10306	E3 PLM	Rev. 002 if the E3 is intended to be opposite the 10201 PM. Rev. 001 is required for sourcing the system clock prior to 1.3 software.
10307	Quad E1 PLM	Software version 1.01 or higher
10308	TriV.35 & E1 PLM	Software version 1.01 Rev. 003 or higher is preferred when interfacing to a 10201 PM.
10309	Quad V.35 PLM	Software version 1.15 or higher
10310	J2 PLM	Software version 1.15 and a Rev. 005 or higher 10200 Cell PM.
10312	IMA DS1 PLM	Software version 1.26 or higher. Requires 1.20 IMA firmware when operating with 1.3 system software
10313	IMA E1 PLM	Software version 1.26 or higher. Requires 1.20 IMA firmware when operating with 1.3 system software

7.0 Valid Value Ranges for 4-byte DLCIs and DFAs

Table 2 outlines the ranges of valid values for 4-byte DLCIs and DFAs:

Table 2 - Valid Value Ranges for 4-byte DLCIs and DFAs

0-255	1703936-1704191	407872-3408127	5111808-5112063	815744-6815999
8192-8447	1712128-1712383	3416064-3416319	5120000-5120255	6823936-6824191
16384-16639	1720320-1720575	3424256-3424511	5128192-5128447	6832128-6832383
24576-24831	1728512-1728767	3432448-3432703	5136384-5136639	6840320-6840575
131072-131327	1835008-1835263	3538944-3539199	5242880-5243135	6946816-6947071
139264-139519	1843200-1843455	3547136-3547391	5251072-5251327	6955008-6955263
147456-147711	1851392-1851647	3555328-3555583	5259264-5259519	6963200-6963455
155648-155903	1859584-1859839	3563520-3563775	5267456-5267711	6971392-6971647
262144-262399	1966080-1966335	3670016-3670271	5373952-5374207	7077888-7078143
270336-270591	1974272-1974527	3678208-3678463	5382144-5382399	7086080-7086335
278528-278783	1982464-1982719	3686400-3686655	5390336-5390591	7094272-7094527
286720-286975	1990656-1990911	3694592-3694847	5398528-5398783	7102464-7102719
393216-393471	2097152-2097407	3801088-3801343	5505024-5505279	7208960-7209215
401408-401663	2105344-2105599	3809280-3809535	5513216-5513471	7217152-7217407
409600-409855	2113536-2113791	3817472-3817727	5521408-5521663	7225344-7225599
417792-418047	2121728-2121983	3825664-3825919	5529600-5529855	7233536-7233791
524288-524543	2228224-2228479	3932160-3932415	5636096-5636351	7340032-7340287
532480-532735	2236416-2236671	3940352-3940607	5644288-5644543	7348224-7348479
540672-540927	2244608-2244863	3948544-3948799	5652480-5652735	7356416-7356671
548864-549119	2252800-2253055	3956736-3956991	5660672-5660927	7364608-7364863
655360-655615	2359296-2359551	4063232-4063487	5767168-5767423	7471104-7471359
663552-663807	2367488-2367743	4071424-4071679	5775360-5775615	7479296-7479551
671744-671999	2375680-2375935	4079616-4079871	5783552-5783807	7487488-7487743
679936-680191	2383872-2384127	4087808-4088063	5791744-5791999	7495680-7495935
786432-786687	2490368-2490623	4194304-4194559	5898240-5898495	7602176-7602431
794624-794879	2498560-2498815	4202496-4202751	5906432-5906687	7610368-7610623
802816-803071	2506752-2507007	4210688-4210943	5914624-5914879	7618560-7618815
811008-811263	2514944-2515199	4218880-4219135	5922816-5923071	7626752-7627007
917504-917759	2621440-2621695	4325376-4325631	6029312-6029567	7733248-7733503
925696-925951	2629632-2629887	4333568-4333823	6037504-6037759	7741440-7741695
933888-934143	2637824-2638079	4341760-4342015	6045696-6045951	7749632-7749887
942080-942335	2646016-2646271	4349952-4350207	6053888-6054143	7757824-7758079
1048576-1048831	2752512-2752767	4456448-4456703	6160384-6160639	7864320-7864575
1056768-1057023	2760704-2760959	4464640-4464895	6168576-6168831	7872512-7872767
1064960-1065215	2768896-2769151	4472832-4473087	6176768-6177023	7880704-7880959
1073152-1073407	2777088-2777343	4481024-4481279	6184960-6185215	7888896-7889151
1179648-1179903	2883584-2883839	4587520-4587775	6291456-6291711	7995392-7995647
1187840-1188095	2891776-2892031	4595712-4595967	6299648-6299903	8003584-8003839
1196032-1196287	2899968-2900223	4603904-4604159	6307840-6308095	8011776-8012031
1204224-1204479	2908160-2908415	4612096-4612351	6316032-6316287	8019968-8020223
1310720-1310975	3014656-3014911	4718592-4718847	6422528-6422783	8126464-8126719
1318912-1319167	3022848-3023103	4726784-4727039	6430720-6430975	8134656-8134911
1327104-1327359	3031040-3031295	4734976-4735231	6438912-6439167	8142848-8143103
1335296-1335551	3039232-3039487	4743168-4743423	6447104-6447359	8151040-8151295
1441792-1442047	3145728-3145983	4849664-4849919	6553600-6553855	8257536-8257791
1449984-1450239	3153920-3154175	4857856-4858111	6561792-6562047	8265728-8265983
1458176-1458431	3162112-3162367	4866048-4866303	6569984-6570239	8273920-8274175
1466368-1466623	3170304-3170559	4874240-4874495	6578176-6578431	8282112-8282367
1572864-1573119	3276800-3277055	4980736-4980991	6684672-6684927	
1581056-1581311	3284992-3285247	4988928-4989183	6692864-6693119	
1589248-1589503	3293184-3293439	4997120-4997375	6701056-6701311	
1597440-1597695	3301376-3301631	5005312-5005567	6709248-6709503	

8.0 Modifications to the MIB Reference Manual

8.1 Additional MIB Reference Manual Information

The following are corrections to the *MIB Reference Manual:*

- Setting MIB variable `dsx1TransmitClockSource` or `dsx3TransmitClockSource` to `throughTiming(3)` has the same effect as setting the variable to the `valuelocalTiming(2)`.
- The *CellPath* 300 allows values other than `dsx1SendNoCode(1)` to be set for the `dsx1SendCode` MIB variable, although these values cause no codes to be transmitted.
- The entries for `hssiTsetDceClkRate` and `hssiRsetDceClkRate` list some values for clock rates that are not supported. The only supported clock rates are any multiple of 512 from 1024 kbps up to 51200 kbps (1024 kbps up to 51.200 Mbps.)
- The description for the `portMaxRateIndex` variable in the *CellPath* 300 MIB and the *MIB Reference Manual* specify separate values for Cell-PLCP and Cell-HEC operation. However, the *CellPath* 300 does not actually limit Cell-PLCP operation to the specified Cell-PLCP maximum values, but allows Cell-PLCP operation to use rates up to the higher Cell-HEC maximum values. Accordingly, the user interface allows cell ports configured for PLCP cell delineation to use the higher bandwidths normally used with HEC cell delineation.
- The description of the MIB `ifDescr` is incomplete on page 223 of the *MIB Reference Manual*. The complete description is detailed in Table 3:

Table 3 - Complete Description of the `ifDescr` Object

OID, Name, Access	Syntax	Description
1.3.6.1.2.1.1.2.2.1.2 `ifDescr` read-only	DisplayString (SIZE (0..255))	A textual string containing information about the interface. The possible values for IP interface are: lp*n* — IP loopback interface aal5*n* — AAL 5 IP interface ether*n* — Ethernet IP interface *n* is a number from 0-10. If *n* is in the range 1-10, then it is the corresponding `confIpTableIndex` value for this IP interface. The possible values for protocol level interfaces are: cbr:*sp* — a CBR protocol interface vbrPacket:*sp* — a VBR / packet protocol interface cell:*sp* — a cell protocol interface ...and the possible values for physical level interfaces are: dsx1:*sp* — a DSX-1 protocol interface ds3:*sp* — a DS3 protocol interface j2:*sp* — a J2 protocol interface oc3cStm1:*sp* — an OC3 / STM1 protocol interface e3:*sp* — an E3 physical interface e1:*sp* — an E1 physical interface aimuxE1:*sp* — an IMA E1 physical interface aimuxDS1:*sp* — an IMA DS1 physical interface hssi:*sp* — a HSSI physical interface v35Eia530:*sp* — a V.35 / EIA 530 physical interface ethBridge:*sp* — the Ethernet port physical interface on the 2-port Ethernet bridge atmBridge:*sp* — the ATM port physical interface on the 2-port Ethernet bridge *sp* is the physical location of the port on the *CellPath* 300, where *s* is the slot number and *p* is the port number.

- On page 310, the following MIBs are listed and their intended use is described, but the *CellPath* 300 does not support them and allows returns a value of 0.
  - n dot3StatsSingleCollisionFrames
  - n dot3StatsMultipleCollisionFrames
  - n dot3StatsSQETestErrors
  - n dot3StatsDeferredTransmissions
  - n dot3StatsInternalMacTransmitErrors

9.0 Contacting Technical Support

In the U.S.A., you can contact FORE Systems' Technical Support by any one of four methods:

1. If you have access to the Internet, you may contact FORE Systems' Technical Support via e-mail at the following address:

   support@fore.com

2. You may FAX your questions to "support" at:

   724-742-7900

3. You may send questions, via U.S. Mail, to the following address:

   FORE Systems, Inc.
   1000 FORE Drive
   Warrendale, PA 15086-7502

4. You may telephone your questions to "support" at:

   800-671-FORE or **724-635-3700**

Technical support for non-U.S.A. customers should be handled through your local distributor.

No matter which method is used for technical support, please be prepared to provide the serial number(s) of the product(s) and as much information as possible describing your problem or question.